New Product Announcement

AP64100Q/AP64102Q AP64200Q/AP64202Q

40V, 1A and 2A, Synchronous Buck Converters Deliver High Efficiency for Automotive Point-of-Load Applications

The AP64100Q (1A), AP64102Q (1A), AP64200Q (2A), and AP64202Q (2A) are synchronous buck converters with a wide input voltage range of 3.8V to 40V and are AEC-Q100 Grade 1 qualified. Their integrated 150mΩ high-side and 80mΩ low-side power MOSFETs provide high-efficiency step-down DC-DC conversion.

To reduce EMI, all four devices use frequency spread spectrum (FSS), which prevents the emitted energy to stay at any one frequency for any significant period of time.

The AP6410xQ/AP6420xQ has an adjustable switching frequency of up to 2.2MHz that can also be synchronized to an external clock.

The AP64x00Q has external loop compensation to optimize its loop response, whereas the AP64x02Q has adjustable soft-start time to reduce inrush currents.

All devices are available in the SO-8EP package.

The Diodes Advantage

The AP64100Q/AP64102Q/AP64200Q/AP64202Q provides high-efficiency DC-DC conversion for automotive POL applications.

- **VIN 3.8V to 40V**
  Works across a wide automotive battery voltage range
- **Wide output voltage range: 0.8V to near 100% of VIN**
  Duty cycle extends to 100%, supporting LDO-like functionality
- **Low (25µA) quiescent current (I_Q) and 1µA shutdown current**
  Enables systems to meet <100µA standby requirements of some automotive applications
- **Adjustable and synchronizable f_{SW}**
  Low frequency from 100kHz: high-efficiency solution
  High frequency up to 2.2MHz: small form factor solution
- **Pin compatibility among 1A, 2A, 3.5A, and 5A family**
  Reduces design effort for multiple applications with different output current requirements

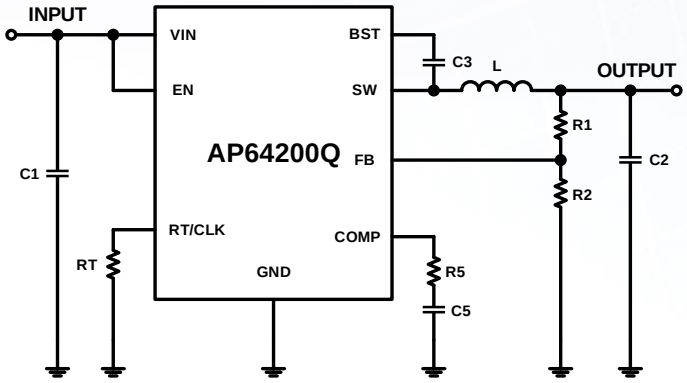
Automotive Applications

- Power systems
- Infotainment systems
- Instrument clusters
- Telematics
- Body electronics and lighting
- Advanced driver assistance systems

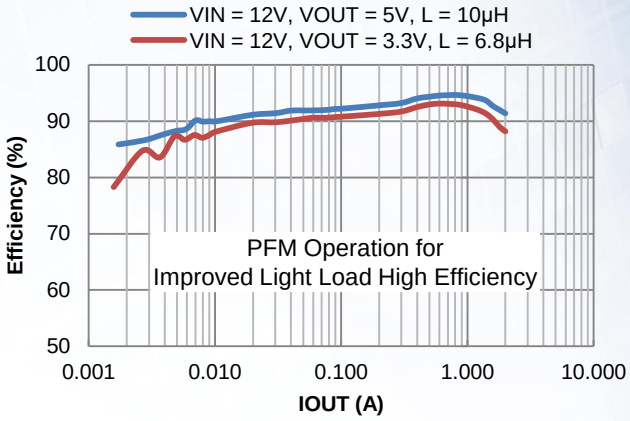
New Product Announcement

AP64100Q/AP64102Q
AP64200Q/AP64202Q

Typical Application Circuit



Efficiency vs. Output Current



40V, Automotive-Compliant, DC-DC Buck Converter Portfolio

Part Number	V_{IN} Range (V)	V_{OUT} Range (V)	Output Current (A)	LS / HS $R_{DS(ON)}$ (mΩ)	Switching Frequency (kHz)	I_Q (µA)	Key Features				Ambient Temperature (°C)	AEC-Q100 Grade	Package
							Adj. f_{SW}	Ext. Sync	Ext. Comp	Adj. SS			
AP64100Q	3.8 – 40	0.8 - V_{IN}	1.0	150 / 80	100 - 2200	25	Y	Y	Y	-	-40 to +125	1	SO-8EP
AP64102Q							Y	Y	-	Y			
AP64200Q	3.8 – 40	0.8 - V_{IN}	2.0	150 / 80	100 - 2200	25	Y	Y	Y	-	-40 to +125	1	SO-8EP
AP64202Q							Y	Y	-	Y			
AP64350Q	3.8 – 40	0.8 - V_{IN}	3.5	75 / 45	100 - 2200	22	Y	Y	Y	-	-40 to +125	1	SO-8EP
AP64351Q					570		-	-	Y	Y			
AP64352Q					100 - 2200		Y	Y	-	Y			
AP64500Q	3.8 – 40	0.8 - V_{IN}	5.0	45 / 20	100 - 2200	25	Y	Y	Y	-	-40 to +125	1	SO-8EP
AP64501Q					570		-	-	Y	Y			
AP64502Q					100 - 2200		Y	Y	-	Y			

Ordering Information

Orderable Device	Compliance	Package Code	Package	Moisture Sensitivity	Reel Size	Tape Width	Quantity
AP64100QSP-13	Automotive	SP	SO-8EP	MSL-1	13 inches	12 mm	4,000
AP64102QSP-13	Automotive	SP	SO-8EP	MSL-1	13 inches	12 mm	4,000
AP64200QSP-13	Automotive	SP	SO-8EP	MSL-1	13 inches	12 mm	4,000
AP64202QSP-13	Automotive	SP	SO-8EP	MSL-1	13 inches	12 mm	4,000